THE CONDOR

A Magazine of Western Ornithology

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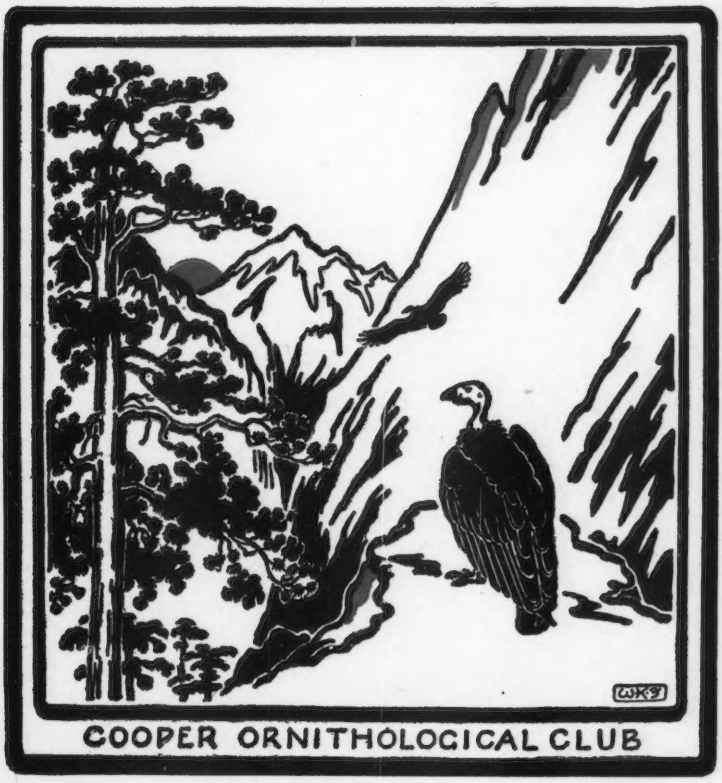

COOPER ORNITHOLOGICAL CLUB

THE CONDOR

A Magazine of Western Ornithology

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THE BREEDING LIMICOLAE OF UTAH

WITH SEVEN ILLUSTRATIONS

By CAPTAIN L. R. WOLFE, U. S. Army

Steganopus tricolor. Wilson Phalarope. The beautiful little Wilson Phalarope is not uncommon in the Salt Lake Valley, Utah. The first individuals appear about the last week in April (my earliest record is April 25), but most of them arrive about the middle of May. After the first influx of migration, Wilson Phalaropes are usually seen in pairs, three's or small flocks, about ponds and small lakes throughout the valley. The actual mating season begins some ten days after their arrival. During this period they are most frequently seen in pairs or in three's, two females and one male.

During the breeding period the females show some rivalry over the males, and two are frequently seen displaying their attractions before one male. This continues until the males actually begin to incubate the eggs. The female has some concern and interest in the nest for a short time after incubation begins, as I have frequently flushed a female who was standing guard a few feet from the incubating male. Before incubation is completed the females assemble in small flocks. Shortly after the eggs are hatched the females disappear, the males having assumed the full family duties and care of the young. By the last of July both the young birds and the old males have moved southward and the few remaining Wilson Phalaropes seen in the Salt Lake Valley after the first week in August are, I believe, migrants from points farther north.

In choosing a nesting site, these phalaropes select a patch of thick, short grass, usually in the vicinity of a pond. The situation is quite typical, the grass short and thick but never bunched. They never nest in colonies, but a small area of especially suitable cover will frequently attract several pairs. When the original nesting site is selected, I believe that the ground is always dry; however, the flats are frequently flooded later. In this case the difficulty is remedied by the bird gradually building up the nest with small weed stems and grass.

I found such a nest, June 4, 1925, which was built up four and one-half inches above the ground and standing in water that was then nearly up to the top of the nest. This nest was composed of dead grass and weed stems and was lined with grass. In the same vicinity there were two other nests, each built up several inches high; both were deserted and the eggs were barely covered with water.

Except in cases as noted above, the nest is usually a slight depression in the ground and lined only with a few small stems of dry grass. If the ground becomes wet or flooded the nest is built up as required to keep the eggs dry.

The Wilson Phalarope breeds in suitable situations throughout Salt Lake Valley and in the mountain parks and valleys of the Wasatch Range up to at least 8000 feet altitude.

Recurvirostra americana. American Avocet. Avocets are common in Salt Lake Valley, but do not breed in any of the surrounding mountain parks. The first arrivals reach Salt Lake City and vicinity about the last of March, and by April 10 the birds are common. I believe that the avocets, like the willets and curlews, are already mated when they arrive, because they take up the duties of housekeeping at once. These noisy and showy birds frequent the mud flats and shallow alkali ponds, where some are continually in the air and their persistent yelping becomes

Fig. 4. NEST AND EGGS OF AMERICAN AVOCET.
Photo by Sgt. L. Curbow.

an irritation at times. Three or four to fifteen or twenty pairs constitute a nesting colony. When a man visits a colony the birds make a great fuss, usually flying out several hundred yards to meet the intruder, then circling and crying in loud, shrill tones. When the eggs are much incubated or if there are young ones around, avocets will make repeated dives at the intruder, and although I have never been struck, a long bill has frequently zipped within a few inches of my head. If this form of attack is not successful another ruse may be used. One or more of the birds will alight on the ground or in shallow water a few yards away. In pretense of being wounded or dying the bird will nearly lie on its side, both wings quivering and one leg distended, the voice changing to a rather low and plaintive whimpering note.

The nesting site, as well as the nest, of the avocet is varied. The nest may be any place in the vicinity of water. (See figs. 4 and 5.) A favorite situation is

on the mud just bordering the edge of an alkali pond or on small lumps among the dead roots of a clump of greasewood. When in this kind of a location the nest is usually a slight depression lined with a few stems, greasewood twigs, and grass. Not infrequently there will be a border of snail shells around the edge of the nest. Another site commonly selected is in salt grass at the edge of a pond, either on dry ground or where the water is two or three inches deep. When in this situation the nest is built up one or two inches from the ground, the base being of coarse grass stems and weeds, with a lining of grass. I once found a nest built on top of a square post, the top of the post being about three inches above the water level of a shallow alkali pond.

The first eggs are laid by April 15 and the breeding period is extended until well into June. However, the later nests are probably second efforts. After the eggs are hatched both parents are very solicitous of the young and take care of them until they can care for themselves. I have seen them attack a dog in the protection of their offspring. When surprised on an open mud flat, the adult birds will drive their chicks to the nearest cover before centering their attention on the

Fig. 5. NEST AND EGGS OF THE AMERICAN AVOCET.
Photo by A. D. Boyle.

intruder. As soon as the young ones are out of the eggs, they are active, they have no hesitancy in taking to the water, and they swim easily.

The usual number of eggs is four, frequently only three. I have seen nests containing five and even six eggs that were all exactly alike and which I am sure were laid by the same female.

Himantopus mexicanus. Black-necked Stilt. The Black-necked Stilt is a common bird in suitable localities all over the valley but is not as abundant as the avocet. The first stragglers arrive from the south about the first of May, and the number increases until by the middle of the month all of the breeding pairs are located on their favorite grounds. The habits of stilts and avocets are similar; both are to be found around the borders of sloughs and shallow alkali ponds. Stilts, though often found in company of avocets, usually select situations where there is a good growth of short marsh grass with water a few inches deep. They are always noisy. If an intruder approaches their nesting grounds, several will fly out as a reception committee, circle around, and make enough noise to attract all of the waders within a quarter of a mile. Stilts are also good at the broken-wing ruse,

in which they will alight on the ground, stretch out, and with wings extended will limp and flutter along, all the while uttering a rather low plaintive note.

In the Salt Lake Valley the stilts begin nesting about the middle of May, and fresh eggs may be found as late as the last week in June. The majority, however, nest about the last of May. The nesting site is somewhat varied, but usually close to water, and most often on wet ground in salt grass along the edge of the water or even in the water. When in such a situation the nest has a good base of grass stems and short pieces of reed, and it is usually lined with dry grass. Another situation, but not so common, is on a mud flat where the ground is wet but with no grass or other concealment. In this situation the nest is a slight depression lined with a few blades of grass, or perhaps with a slight base of stems, all depending upon how wet the ground may be.

May 25, 1926, while I was wading through a mass of dead tules and marsh grass, with water and mud nearly half way to my knees, I was surprised to find a stilt's nest built on top of a bunch of dead tules. This nest was well constructed and built up about six inches above the water; it was composed of tule leaves and bits of dead reeds and grass, with a lining of dead grass. June 1, while searching for nests of the Black Tern, I found another nest in a similar situation. This one was in water about a foot deep and built on the broken-off stubs of some tules. The general situation was exactly like that selected by the Black Terns and within a few feet of a tern's nest. The usual number of eggs in a stilt's nest is three or four, most frequently the latter number.

Capella gallinago delicata. Wilson Snipe. The Wilson Snipe is a rather rare bird in this locality but is commoner than is generally supposed. Unless the observer is well acquainted with its habits and the type of ground it inhabits, the bird is seldom seen.

Snipe are among the first spring arrivals among the Limicolae, usually reaching the vicinity of Salt Lake City by the first week in April, or even at an earlier date if there is an early spring. These first arrivals probably move on northward and their places are taken a week or two later by the residents. It is impossible to determine just when the breeding birds migrate in the fall, as their place is again taken by migrants from farther north; however, snipe are occasionally found in the valley as late as the middle of October. The favorite haunts of these interesting birds are around any fresh-water marsh, bog, or marshy meadow where there is plenty of grass, but the ground must be wet and spongy. A well-pastured meadow in which there are boggy spots is an especial favorite for a breeding ground. The size of the bog seems to make little difference as I have found individual pairs inhabiting wet spots which covered much less than an acre. Each pair is somewhat solitary, but several pairs may be assembled in and around the larger meadows. The breeding area includes suitable spots all along the western slope of the Wasatch Range, and in the mountain parks up to an elevation of about 8000 feet.

If a person be near their nesting haunts in the late afternoon or the early morning, the male snipe can usually be seen going through his aërial maneuvers and may be heard making the peculiar booming-winnowing noise. This courtship or mating flight takes the general form of a circle about 500 yards in diameter, of which the incubating female is the center. With rapid wing beats the male makes a series of wide circles, mounting higher and higher in the air, all the while uttering a series of plaintive love calls, which resemble a continuous *hu-hu-hu-hu*, which increases and then decreases in intensity. After he has reached the desired height and circled for some little time, he seems suddenly to coast down, the waver-

ing vibrations evidently coming from the air passing through the feathers. He may repeat this action several times or drop directly to the ground.

My first introduction to the nesting site of the Wilson Snipe was on May 30, 1925, when in company with Mr. A. D. Boyle. A nest was located close to a dwelling house and on a small patch of wet ground. The meadow contained fifteen or twenty acres, but the bog was only about ten yards square. Mr. Boyle flushed presumably the female nearly under his feet; she fluttered in the grass as if wounded for about twenty feet and then took wing. The nest contained four eggs which were just hatching. It was a depression in the top of a slight hump; the ground just under the nest was dry, but surrounding the hump it was wet and spongy, covered by an inch or two of water.

With this nest and the surrounding terrain as a guide, I located at least fifteen breeding pairs in the immediate vicinity of Salt Lake City. The situation was

Fig. 6. NEST AND EGGS OF THE WILSON SNIPE IN SMALL MARSH NEAR PARK CITY, UTAH.

Photo by Sgt. L. Curbow.

always practically the same, a low meadow containing a spot of wet spongy ground and well covered with short grass. The nests themselves are exceedingly hard to find. Snipe have no regular or definite actions as concern the brooding bird; one will flush just under your feet and then flutter along the ground with the usual broken-wing action, while another bird will flush from the nest when you are fifteen or twenty yards away and with no hesitancy fly straight across the meadow. These actions are irrespective of whether the eggs are fresh or heavily incubated. The action seems to be characteristic of the individual.

The favorite location for a nest is on top of a small hump or knee, where the ground is dry just under the nest, but wet and probably covered with an inch or two of water surrounding the hump. Sometimes, however, a location is selected on dry ground and some little distance from the bog. The amount of nesting ma-

terial used varies according to the location and is usually added to as incubation proceeds. A typical nest, found May 29, 1926, was on a slight hump in a small bog; the grass surrounding the nest was about ten inches high. The nest was a slight depression 3½ inches in diameter and ¾ of an inch deep; this was lined with grass stems broken down and arranged in the depression with a few additional pieces of grass; the bottom of the nest was wet. Another, found June 3, 1927, was on the edge of a wet boggy marsh; the nest was 3½ inches in diameter and 3 inches high; it was composed of grass stems and bits of weeds, slightly hollowed on top and lined with grass. This nest had probably been originally built on fairly dry ground; but the meadow had been flooded and as the water surrounded the nest it had been gradually built up until it stood in water about two inches deep.

The usual number of eggs is four, occasionally only three. The eggs of this species run through a greater range of color and markings than do the eggs of any other of the local Limicolae. The ground color varies from a pale light green, gray and drab to dark brown, and the shell markings from lilac to deep chocolate.

Fig. 7. NEST AND EGGS OF THE WESTERN WILLET.
Photo by A. D. Boyle.

Catoptrophorus semipalmatus inornatus. Western Willet. The Western Willet is a common and conspicuous bird throughout the valley, but I have never observed it in the mountain parks. The first arrivals in the spring reach the vicinity of Salt Lake City about April 10; the main body arrives a week or ten days later. The birds are to be found around the shallow ponds bordering Great Salt Lake and on the wide expanses of alkali flat. This noisy wader, with broad white wing patches, is characteristic of this terrain and cannot be confused with any other species.

When one approaches a pond where a pair of willets is feeding, the birds immediately take flight and circle around and around, or with rapid wing beats hover just overhead, scolding and fussing at the visitor. They have a great variety of call notes which are beyond my description, but when once heard they are never forgotten. Sometimes one or two birds seem to have come from some distance, and their object is just a general inspection; they will circle around overhead, scolding and yelping until their curiosity is satisfied, and then disappear across the flats. Although willets are exceedingly noisy around their breeding grounds, in the immediate vicinity of a nest, the individuals concerned are absolutely quiet. The observer

will never know that there is a willet within a mile until one is flushed directly underfoot, when she will let out a few squawks, circle around overhead once or twice, and disappear. After the young are hatched it is a different story; both parents will then be much in evidence and the racket will be so intense that most of the willets in that part of the country will come about and join in the chorus.

Willets do not colonize, but several pairs may be found breeding in the same general locality. They are birds of the marsh and shallow ponds, but the nesting site is selected on the dry alkali flat and frequently a half mile or farther from water. Willets and Long-billed Curlews, in general, inhabit the same ground, yet their nesting sites are totally different. Birds of both species sit very close on the nest. The gray, mottled color of the willet blends exactly with the gray, alkali-flaked ground, and even though every square foot of the ground is searched, usually the first indication of a nest is the bird that flushes from the nest directly under one's feet.

The first nest of this species that I ever found was on a low ridge between two marshes. There were a few scattered bunches of sage, probably fifteen or twenty yards apart, and the ground between these was practically bare except for a spray of grass here and there that was not over an inch high. My first thought was that not even a field mouse could find concealment between the bunches of sage; but just then a willet flushed from between my legs. After a nest is located and marked, it is an easy matter to approach quietly, then with a slow movement lean over and stroke the sitting bird or lift her from the eggs.

The typical nest is placed on a spot very sparsely covered with grass, the ground bare except for a few scattered stems or small greasewood sprouts. The center of a bunch of greasewood two or three inches high is also a favorite location. A depression is scratched out, about five or six inches in diameter and three inches deep, which looks just like a good big soup bowl. This depression is occasionally very scantily lined, but in most nests there is a good lining of weed stems, grass, or fine greasewood twigs. I have seen a few nests that were placed in salt grass six or eight inches high, but such a location is most unusual for the Salt Lake Valley. In the Condor (XXI, 1919, p. 39) Van Denburgh writes of finding nests of the willet in Lassen County, California, that were "built up on the mud at the edge of the water." His description is exactly that of many avocet's nests that I have seen, but in this locality such a situation is never selected by willets.

The Western Willet usually lays four eggs, rarely three. I have found one nest containing two eggs that were nearly ready to hatch; because of the early date, this could hardly have been a second set.

Actitis macularia. Spotted Sandpiper. The Spotted Sandpiper is a common bird all over the valley as well as along the mountain streams and lakes as high as 9000 feet elevation. My earliest observation of spring migrants was April 28, but it is quite probable that they arrive a week or two before that date. These little waders are versatile in their habits and are able to adapt themselves to any convenient surroundings. They seem to be equally at home around a shallow alkali pond in the Salt Lake area, among the rocks of a swiftly rushing mountain stream, or along the border of an isolated and quiet mountain lake.

In the vicinity of Salt Lake City, eggs are deposited about the third week of May, and correspondingly later at the higher altitudes. The nest is well concealed and extremely hard to find, as the bird can never be flushed. The brooding sandpiper will leave the nest at the least intimation of danger, sneak some distance away, and then watch the intruder. The nest is usually in short grass or beneath a small

weed or bush and not far from water. The only sure way to locate one is to find a pair of birds that seem nervous and then to retire a short distance and watch the brooding bird return to the eggs. It will usually return within fifteen or twenty minutes.

The nest is a slight depression in the ground and may be lined with anything that is available: sometimes short bits of grass, at other times small pieces of gravel, shells, or bits of wood. I once found a nest that was near a railroad, and the depression was filled nearly a half inch deep with cinders. Four eggs are usually deposited in the nest; three make a full set for a second laying or if the nest has been disturbed.

Numenius americanus. Long-billed Curlew. This large wader is one of the beauties of the alkali wastes, and any ornithologist will experience a real thrill when he sees it on the breeding grounds. The advance guard of the spring migration reaches the vicinity of Salt Lake City about the last of March. The earliest date observed by me was March 25. The main body of resident birds arrives about

Fig. 8. NEST AND EGGS OF THE LONG-BILLED CURLEW.

the second week of April and at once begins preparations for raising the annual family. I believe that the pairs are mated before their arrival, as I have never been able to observe any manifestation in the way of mating. As soon as the young are able to fly the curlews assemble in groups of two or three families and leave the alkali flats. They remain around the shores of the shallow ponds for a short time thereafter but soon move southward. Very few are seen after the middle of July, and I believe that all curlews seen after the first of August are migrants from farther north.

The haunts of the Long-billed Curlew are the dry alkali wastes, frequently a long distance from water. Where scattered bunches of greasewood are separated by bare alkali deposits and fringed with scant growths of fine grass, the curlew reigns supreme and shouts his ownership to all comers.

The curlews are almost as noisy as willets, and when several birds of both species are flying around overhead the din and racket ceases to be a pleasure. They have a multitude of call notes. The most common is a rather soft, clear *pile-wil, pile-wil,* repeated several times in succession, quite similar to one of the calls of the willet. Their alarm note is a loud shrill *kee-he, kee-he.*

In the selection of a nesting site, a pair of curlews may locate any place on the prairie, yet these birds most frequently use certain places that can be recognized as characteristic. The ideal location is in short grass and on a slight rise of ground, close to and overlooking a wide alkali deposit. The picture with Mr. Boyle at a nest is most typical (fig. 9). The white areas in the background are bare alkali flats. When not disturbed, the male curlew spends much of his time as a guardian of the nest and will be standing around some place within about a hundred yards of the incubating female. Whenever an intruder appears, the male flies out to meet him, then circles around and around, all the time uttering loud cries of protest. The incubating female sits very close on the nest and is usually flushed within a few steps. When she leaves the nest, with a lusty squawk, her action is quite

Fig. 9. MR. A. D. BOYLE AND HIS "PET" CURLEW.

like that of a turkey, as she will run along for ten or fifteen yards, toes just touching the ground, wings flopping, and neck outstretched.

Some ornithologists have stated that the female is quite conspicuous as she sits on the nest. This certainly is not the case in this locality. Her mottled back is so blended with the surrounding gray, green, and brown background that it is a difficult task for even an experienced observer to see her. Of course there are occasional nests in exposed positions, and then the female is easily seen; but she is hard to recognize, as she looks exactly like a small mound of earth or lump of old manure. When a brooding bird is located some distance away, and one makes a slow cautious advance, it is not at all difficult to approach within a few feet. Sometimes she will wait to be stroked gently on the back or even handled and lifted off the nest.

The nest is a slight depression in the ground. This is lined with grass, weed stems, burrs, sheep dung, or any other available material. A few nests are scantily lined, but most of them have a thick pad one or two inches in depth. The nest is seven to ten inches in diameter and two or three inches deep. The eggs are usually four, occasionally only three, and very rarely as many as eight. It is reasonable to suppose that any number over four has been the product of two females, but I have seen two different nests of eight eggs in which all of the eggs in the nest were exactly alike. I am firmly convinced that occasionally one female will deposit as many as eight eggs. The eggs of the Long-billed Curlew vary a good deal in size, shape, and color. One egg of a set is frequently off color, but is usually the same size and shape as the others.

I believe that the curlews are diminishing in numbers within the Salt Lake Valley. My own observations were not extended over a sufficient length of time to obtain any definite count; however, vast areas of their former breeding range

Fig. 10. THE AUTHOR STROKING A CURLEW WHILE ON ITS NEST.

Photo by A. D. Boyle.

have recently been reclaimed, and more land is fenced and tilled every year. Sheep probably do more actual damage to their nests than any other enemy. Most suitable breeding areas are heavily pastured by thousands of sheep, and in such places there is hardly a square foot of ground that does not show dozens of hoof marks. I have seen nests of both curlews and willets, as well as ducks' nests, that had been trampled upon.

Oxyechus vociferus. Killdeer. Killdeers are among the best known birds in the United States, and so much has been written regarding their habits that additional notes will be of little interest. They are abundant summer residents all over Salt Lake Valley and are frequently seen in the mountain parks as high as 8000 feet altitude.

Killdeers are the first of the army of waders to reach the valley in the spring. The first birds arrive about the first of March, and shortly thereafter they are to be found almost everywhere. Around some of the shallow brackish ponds, where there is a little gravel and small patches of bare alkali ground, killdeers are so

abundant that they constitute almost a colony. They begin nesting activities early, fresh eggs having been found as early as April 10. The breeding season is irregular and is continued until the middle of June. The late breeding pairs may be only those whose first eggs have been destroyed, but it seems to me that more than one brood of young is indicated. However, it is practically impossible to check up the nesting activities of any given pair of birds.

Killdeers are most abundant on the alkali flats, but breeding pairs are found all over the valley. A nest may be placed in a plowed field, little-used road, gravel deposit, or pile of rubbish. The ideal nesting site on the flats is the top of a small mound, just a few inches higher than the surrounding ground. Frequently there will be a small mound with a few dead roots projecting from the top. Nearly every one of these will be scratched out, showing that it was considered as a possible nest. Near every occupied nest there will usually be found several small scratched-out depressions that look like nests in the course of construction or perhaps just ready for eggs. It is an interesting conjecture as to whether these are meant to be some kind of a decoy nest, or whether the killdeers are just naturally fickle and change their minds.

The nest is just a small depression lined with bits of gravel, shells, or anything else that may attract the attention of the builder. The nest lining and background always harmonize with the color of the eggs, and the eggs are hard to see even when one is looking right at the nest. The usual number of eggs is four, late sets frequently have only three, and I have seen an occasional set of five eggs.

Charadrius nivosus nivosus. Snowy Plover. Snowy Plovers have been seen April 27; but many must reach the Salt Lake Valley at an earlier date, because I have found complete sets of eggs as early as May 5. The birds are found only on the alkali flats, on some bare space and close to brackish water. As one walks along in such places, small gray figures will scurry around the shore some fifteen or twenty yards ahead, and their low *peet-peet* note can be heard. The Snowy Plover is such an inconspicuous little fellow and its color is so well blended with the surroundings that one has to be especially watchful in order to notice the bird at all. The color is so much like that of the alkali soil that as soon as a bird stops moving it seems to disappear. Snowy Plovers are hesitant to take wing and if not pressed too closely they will run a long distance before flying; but one never flies very far at one time.

The nesting time of the Snowy Plover is irregular; eggs have been found May 5 and as late as June 10. This suggests the probability of there being more than one brood of young in a season, but no definite check could be made on any one pair. This plover has the same habit as the killdeer in making several dummy nests in the vicinity of the real one. The typical nesting site of the Snowy Plover is on the bare ground, sometimes close to a piece of drift or other object, and at other times among the dead roots of greasewood. The nest is merely a scratched-out depression, lined with bits of roots, pebbles, or shells. I do not believe that these are added as a real nest lining, but are put there in order to add to the protective coloration of the background. The eggs are two or three in number, two being found as frequently as three. Their gray and black coloration is such that they are invisible a few feet from the nest.

Manila, P. I., January 25, 1930.

SOME NOTES ON YOUNG DESERT HORNED LARKS

WITH TWO ILLUSTRATIONS

By LEON KELSO

From September 1, 1928, to July 30, 1930, the writer had under observation a small area of level waste land within the city limits of Aurora, Colorado. The Desert Horned Lark (*Otocoris alpestris leucolaema*) was found here throughout the year. Four nests of this bird were found in the spring and summer of 1929, and one in the spring of 1930. Some observations made upon the birds are thought to be worth recording.

The area concerned was rectangular in shape, extending 700 yards north and south by 500 yards east and west. It was bordered on the south by Montview Boulevard, a busy thoroughfare running from Aurora west through the adjacent city of Denver. In the east-central part of the area was a small colony of prairie-dogs (*Cynomys ludovicianus*) numbering about eight individuals.

The Environment.—The Horned Lark is closely associated with the plant life of the environment in which it lives. Therefore the following notes on the vegetation of the area are presented. The nomenclature used is that of Coulter and Nelson's New Manual of Rocky Mountain Botany. The identifications have been checked from material in the herbarium of the University of Wyoming. Common names are not available for many of the species, so none is given.

The short-grass association covered most of the north and central portions of the territory, about 70 per cent of the ground. This is the principal association throughout the range of the bird studied. It prefers this for roosting and nesting. The dominant species were grama grass (*Bouteloua oligostachya*) and slender fescue-grass (*Festuca octoflora*). Subdominant species were *Muhlenbergia gracillima, Chrysothamnus plattensis, Opuntia polyacantha,* and *Gutierrezia sarothrae.* Less frequent species were *Allium nuttallii, Leucocrinum montanum, Buchloe dactyloides, Viola nuttallii, Lepidium apetalum, Hedeoma hispida, Plantago purshii, Gaura coccinea, Aristida longiseta, Erysimum asperum, Phellopterus montanus, Eriogonum effusum,* and *Gilia micrantha.* There were also on bare ground two species of low moss and two species of lichens. Leaves of *Bouteloua oligostachya* comprised 60 per cent or more of the material in each nest.

The ruderal association occurred on ground that recently had been cultivated, in an old yard and along the road in the southern end and in the northwest corner. This type of vegetation covered about 10 per cent of the area in all. Here the larks preferred to feed, for it provided many seeds in the winter and supported much insect life in the summer. The young larks were often escorted here on account of food and better protection while yet unable to fly. Different plant species were dominant in different parts of the association. These were *Helianthus annuus, H. petiolaris, Iva xanthifolia,* and *Salsola pestifer.* Subdominant species were *Bromus tectorum, Sitanion elymoides, Chaetochloa viridis, Schedonnardus paniculatus, Poa pratensis, Kochia scoparia,* and *Chenopodium album.* Less frequent species were *Amaranthus retroflexus, A. blitoides, Lappula erecta, Norta altissima, Malvastrum coccineum, Sophia pinnata, Cryptanthe crassisepala, Aster hebecladus, Artemisia aromatica,* and *Centaurea picris.*

The wheat-grass association was found in irregular scattered patches in the western and southern parts of the territory. In the winter the grass dies down, leaving open bare ground with many small depressions between the tufts in which

larks roost when there is little, if any, snow. The dominant plant species were *Agropyron occidentale molle,* and *A. pseudorepens. Chrysothamnus plattensis* was in places a subdominant, while *Grindelia squarrosa* and *Carduus filipendulus* were less frequent members of the association. Leaves of *Agropyron* comprised 10 per cent or more of the material of each nest.

The semi-aquatic association appeared about some temporary pools during the rainy days of April and May, disappearing in the dry days of June. *Myosurus minimus* was dominant. *Eleocharis acicularis, Marsilea vestita,* and *Oscillatoria* sp. were found in a few places.

Notes on nests.—The first nest was found, April 24, 1929, in the north end of the territory. The female flushed when the observer happened to come near the nest about 6:30 p. m., but it flew only a few feet away. The nest was only slightly sheltered by a few stems of *Agropyron.* It contained two young about two days old.

Fig. 11. NEST AND EGGS OF DESERT HORNED LARK.

At any slight noise they would strain their necks upward with their mouths open, uttering an *ihh* sound, audible only a few feet. Length of extended wing of *a,* the larger, 10.5 mm.; of *b,* 10 mm.

April 25. Skin of young, dark purplish, tinged with pink; down, creamy-white, 6-8 mm. long; eyes open. Egg-tooth present; this remained until after the young had left the nest. Neither of the parents came near the nest.

April 26. Pin-feathers starting from back of neck and back, but none on wings; extended wing of *a,* 22 mm.; of *b,* 20 mm.; lining of mouth, reddish orange. Each nestling uttered the previously mentioned sound when holding up its mouth for food.

April 27. Pin-feathers starting on primary area; wing of *a,* 23 mm.; of *b,* 22 mm. The sun shining on the young caused them to breathe heavily; they no longer extended their mouths for food on false stimuli.

April 28. The two young almost filled the nest cup; extended wing of *a,* 30 mm.; of *b,* 27 mm.

April 29. The feathers were growing rapidly, the secondaries being 10-12 mm. long. The tips of the body feathers had emerged from the bluish-black sheaths 2 to 3 mm. all over the body; the exposed part was ochraceous to whitish. The color of the beak had changed from blackish to grayish black, with the egg-tooth yellowish-white. Down still clinging to the head, upper wing-coverts and secondaries. Wings of both, exclusive of feathers, 4.4 cm. When the observer was within 5 feet of the nest the young suddenly extended their heads with their mouths wide open, but instantly perceiving their mistake, drew back, huddling motionless with the eyes closed.

April 30. Wings of young 4.8 cm. long; feathers of back expanded 3 to 4 mm. from the sheaths.

May 1. At 8:00 a. m. a wet snow 2 inches deep covered the territory; the temperature was 36° F and the young were wet and evidently uncomfortable. The general color of the upper parts was dusky flecked with ochraceous; below white with a slight tinge of dusky across the chest, and yellow on the throat. By 6:00 p. m. all the snow had melted away and the young were comfortable though restless. They seemed to perceive the observer at a distance of 20 feet, immediately crouching motionless.

May 2. Visit at 8:00 a. m. The young had left the nest and were huddling side by side in a small depression about 8 feet from it. The parents flew about nearby, showing much concern. One of the young was collected. The length of its wing, exclusive of feathers, was 5.6 cm.

May 3. The remaining young lark was being fed by its parents in the ruderal association about 150 yards northwest of the nest.

May 8. The family was not again found in the nesting territory until this date. The young bird could fly well and was picking up its own food. The parents were still anxious for its welfare, following it when it took flight. At other times it followed them. On May 14 the family was again found. The young bird could still be distinguished by the black flecks on the back and the shorter tail. Its only note was a thin, high chirp somewhat resembling the *tseet* of the adult. On May 17, the three birds were found roosting within three feet of each other in an open spot about 10 yards south of the nest. They were again seen in the territory on various dates until the last of July. On May 28 it was noted that the dark area across the breast and other characters of the first winter plumage were becoming well defined, and that the *tsit-tseet* call was uttered in a tone similar to that of the parents. The latter now showed less solicitude for its welfare. Once the male interrupted courting activity to chase the youngster far out of the territory.

The second nest was found on July 5, when the female was flushed from it just at nightfall. It was located on the western edge of the prairie-dog colony, and was sheltered by only a small tuft of *Eriogonum effusum*. It contained three eggs.

July 6. One of the eggs hatched; female incubating.

July 7. A second egg hatched by 7:00 a. m.; the third egg remained unhatched at 6:30 p. m.

July 8. The third egg had hatched by 8:00 a. m.; female brooding.

July 9. No changes noted in appearance of young.

July 10. Pin-feathers appearing on back and wings of *a*; eyes of *a* and *b* open. Male parent sang from top of tall sapling recently planted near house in north end of territory. An immature bird reared by this pair in April was feeding in the nesting territory.

July 11. The pin-feathers of *c* had appeared; feathers of *a* expanded 1 to 1.5 mm. by 7:30 a. m. At 6:00 p. m. they had expanded 2.5 to 3.5 mm.

July 12. Young all appeared speckled dusky and yellow above, from the expanding feather tips. Temperatures at 12:00 m. were as follows: air, 89.6°; soil, 129.2°; nest wall, 95°; young,[1] *a*, 107.6°; *b*, 104°; *c*, 107°. They no longer extended their open mouths for food, but crouched motionless with their eyes closed.

July 13. The plumage of the young (fig. 12) was well-developed; down remained only on the superciliary areas and some of the secondaries and upper wing-coverts. By 5:30 p. m. *a* had left the nest; the other two stirred about restlessly.

July 14. At 8:30 a. m. *a* was being fed by the parents about 20 yards west of the nest. When I first looked, the other two were still in the nest. A few

Fig. 12. THE SECOND NESTLING OF NEST *2*, SEVEN DAYS OLD.

minutes later, *b* was crouching in the grass a few yards away from it. Temperatures: air, 75.7°; soil, 59°; young, *c*, 100.4°.

July 15. At 6:30, *c* was still in the nest. A few minutes later it ran out from it and crouched in the grass two feet away. The family was not seen in the nesting territory again.

The third nest.—This nest was located within 6 feet of the car tracks of the road along the south end of the area, on July 11, 1929. Unlike the others it was located in the ruderal association, sheltered by tufts of *Elymus canadensis* and *Psoralea tenuiflora*. There were three young two to three days old in the nest. Pin-feathers not evident, eyes closed. Temperatures of young from 8:00 to 9:00 a. m.: *a*, 93.2°; *b*, 94.1°; *c*, 95°.

July 12. Eyes of all young open; pin-feathers appearing on wings and other parts of body. Temperatures at 7:30 a. m.: *a*, 98.6°; *b*, 98.6°; *c*, 99.5°.

July 13. Quills well grown out and beginning to open. Temperature of *a*, 98.6° at 7:30 a. m.

[1] Taken by mouth. All temperatures Fahrenheit.

July 14. Both parents carrying food to the young throughout the day, visits being made to the nest every two or three minutes.

July 15. Young well feathered. Temperatures at 7:30 a. m.: air and nest wall, 71.6°; soil, 68°; young, *a*, 100.4°; *b*, 95.9°; *c*, 95°.

Temperatures at 1:15 p. m.: air, 89°; nest wall, 113°; soil, 134.6°; young *a*, *b*, *c*, 107°.

July 16. When the nest was visited in the morning, the young larks appeared almost lifeless, their heads lying limp on the side of the nest with the eyes closed. Some enemy bird had picked the tops of their heads so severely as to remove part of the feathers and make the top of the head appear crushed and pulpy. A small hole had been opened in the top of the head of *c*. Only slow breathing and very feeble resistant reactions when handled indicated they were alive. Late in the forenoon it was noticed that the parents were bringing food to the nest as before, one mouthful every 2 to 3 minutes. The young lay with their mouths open, panting on account of the heat. Temperatures from 11 a. m. to 12 m.: air, 89.5°; nest wall, 86°; soil, 86°; young, *a*, 107°; *b*, 107.5°; *c*, 109.2°.

July 17. The young were developed sufficiently to leave the nest, but still showed less vigor than normal nestlings. Temperatures at 7:00 a. m.: air, 74.3°; soil and nest wall, 69.8°; young, *a*, 96.8°. On a second visit early in the afternoon *a* was crouching 4 feet from the nest; *b* was 2 feet from it. When disturbed they uttered a chick-like chirp. The bird with the wound in the top of the head, *c*, still remained in the nest. It lay with the head limp on the side of the nest, the eyes closed; temperature, 89.6°; weight, 263.85 grams. By 5:00 p. m. all the young were gone from the vicinity of the nest.

The fourth nest.—Found May 3, 1930, in short-grass association in south part of area, under a short tuft of *Eriogonum effusum*. Bird flushed after dark; found on nest again three minutes after.

May 4. Four eggs in nest. Weights, *a*, 45 grains; *b*, 44 gr.; *c*, 46.5 gr.; *d*, 45 gr.

May 10. Four young in nest, 3 to 4 days old as evidenced by size and development of pin-feathers.

May 17. Young large enough to leave nest. Weights, *a*, 248 grains; *b*, 253 gr.; *c*, 288 gr.; *d*, 248 gr. During the latter part of the forenoon a strong wind and a heavy wet snow brought the temperature down to 33°. Temperature of *a*, 56°; of *b*, 60°; *c* and *d* were barely alive; their temperatures were not taken.

May 18. Two of the young were dead; the others quite well. One, *a*, left the nest in the forenoon. The temperature of the remaining bird was 107° at 1:00 p. m. and 100.4° at 5:00 p. m. It left the nest before nightfall.

By May 4, of the summer of 1929, a pair of Burrowing Owls (*Speotyto cunicularia hypugaea*) had begun nesting activities in one of the burrows of the prairie-dog colony. By July 1, four young owls appeared at the mouth of the nesting hole. They were there at all times of the day, the parents always busy bringing food to them. They could be heard uttering a *shh-shh* call at all times except late in the evening when the parents took them on excursions into vacant lots some distance from their home. At no time, to my knowledge, were the larks disturbed by the owls. The second nest was about 70 yards from the nesting burrow, while adult larks were often picking up food within a few yards of the owls; but the latter never showed any inclination to pursue them.

Summary.—It is evident that rate of growth and length of time spent in the nest by nestling Desert Horned Larks varies according to the time of the year. The

young of nests 1 and 4, in the months of April and May, respectively, remained in the nest at least ten days, while those of 2 and 3, in July, stayed in the nest not more than 7 days. The size attained appeared to be comparable in all instances. As has been noted before, by various writers, the nesting material varies in kind and amount at different times of the year. The first nest had a lining of thistle-down, contained 1505 pieces of material and weighed 16.75 grams; the second had no lining, was built of 805 pieces, and weighed 7.7 grams.

The temperatures of one brood showed a diurnal rhythm as has been noted in other species of birds. Their temperatures were highest in the early afternoon. The rise seemed to correspond with the rise in the temperature of the surroundings.

A local pair of Burrowing Owls did not prove to be enemies of the larks. The second brood of larks studied was reared well within the hunting range of these owls, while the latter were hard-pressed to feed a family of four youngsters as large as their parents.

United States Biological Survey, Washington, D. C., December 18, 1930.

FURTHER NOTES ON CALIFORNIA BROWN PELICANS AT POINT LOBOS, CALIFORNIA

WITH THREE ILLUSTRATIONS

By LAIDLAW WILLIAMS

In the Condor for September, 1927 (p. 246), I recorded the discovery on May 25, 1927, of California Brown Pelicans (*Pelecanus californicus*) breeding at a little island close to the base and on the south side of Point Lobos, Monterey County, California. This is some two hundred miles north of the previously known northern breeding limit for the species.

On June 12, 1928, I again succeeded in landing on the islet. No evidence of nesting pelicans was discovered. Although there appeared to be about the same

Fig. 13. CALIFORNIA BROWN PELICAN: NEST AND EGGS, SHOWING FEATHERS AND GREEN LEAVES AS FREQUENTLY FOUND WITH OTHER NESTING MATERIAL; ISLAND NEAR POINT LOBOS, MONTEREY COUNTY, CALIFORNIA, MAY 29, 1929.
Photo by George Stone.

number of Brandt Cormorants (*Phalacrocorax penicillatus*) on the outlying rocks of the seaboard side, only one nest with eggs was discovered on the islet itself. Western Gulls (*Larus occidentalis*) seemed to have increased as breeders, perhaps accounting for the decrease or temporary diminution of some of the other nesting birds.

A visit to that part of Point Lobos nearest the islet and from where it is easy to identify large birds on it, even with the naked eye, was made on April 4, and another on April 9, 1929. I did not see any pelicans on the island. No other observations were taken until May 22 of the same year, when the pelicans were discovered to have returned. They had come back in numbers far greater than in 1927, the first year of their discovery. (*Cf.* Willett, Pac. Coast Avifauna No. 7, 1912, p. 21, for irregular yearly breeding on the Santa Barbara Islands.) Fully completed nests were in evidence, upon some of which old birds were sitting as though incubating.

On May 29, 1929, we landed on the islet and found fifty-five nests with eggs distributed in clutches as follows:

Three with 1; 22 with 2; 30 with 3; making 137 eggs altogether.

There were twenty nests of Western Gulls containing eggs and young, mostly on the grassy part of the island, but some were on the tops of the bare, stony knolls or "humps".

A few Brandt Cormorants were nesting on the very top of the westernmost hump, but these were apparently a mere overflow from the outlying rocks which were occupied for nesting purposes exclusively by Brandt Cormorants.

Between May 29, 1929, and June 30, the day of my next visit, the pelicans were watched through a telescope from Point Lobos on eight different days, June 1, 5, 7, 12, 14, 17, 21, and 28.

There were always a few first-year birds which loafed around on the tops of some of the knolls or on the outlying rocks. But the adult birds spent most of their time incubating. While engaged in this task they were observed to rest on their eggs in three different positions. The one most frequently used was with the head drawn down between the shoulders and the bill pointing forward horizontally. The second of these postures was with the head drawn down and the bill horizontal but reversed and lying full length on the back. When the bird has attained this position the scapulars (or feathers near them) are then drawn together over the back, thus partly covering the bill. This evidently is the posture of sleep. The third position was with the head and neck erect and the bill depressed. The head and neck are held in this way when the bird is standing in the normal perching attitude. June 1 was an unusually warm day and all birds incubating on nests sheltered from the breeze kept this last position; but the bill was not held against the neck as usual, but with the mandibles slightly apart, and the pouch was palpitating as though it were from the effects of panting because of the heat.

The monotony of incubation was frequently relieved by various stretching and preening exercises. The birds would stand up and flap their wings hard enough to cause the feathers of a neighbor to be blown about by the wind thus created. They preened frequently. A characteristic preening posture was with wings partly spread and the head turned back and upside down, while the bird worked with the tip of its bill on the undersurface of the wing feathers. Sometimes the neck is stretched out in front to the utmost and slightly bent down, while the bird scratches the neck just below the pouch with the toes of one foot.

An exercise frequently observed in progress on the island, and to which may be attached more significance than is apparent, was as follows: The bill is partly opened and the rami of the mandible considerably bowed out laterally. The head is then drawn back and down and the dilated rami fitted over the backward curving neck and pressed down. This action causes the pouch to be turned inside-out. The mandible is then raised toward the maxilla and touches, or nearly touches, it, and the neck is shot up to a vertical position while the whole bill, with mandible still dilated, is thrown up with the neck to the perpendicular or even leaning to a degree slightly beyond the perpendicular. In this way the pouch is stretched out very tightly between its extreme points of attachment, that is, on the neck and mandible.

It was hinted to me in conversation by Dr. Joseph Grinnell that this "exercise" might not merely be a yawning or stretching procedure, but that the animal might be trying to rid itself of, or obtain relief from, a pouch-infesting parasite. Prof. Vernon Kellogg, in his paper on the mallophagan parasites of water birds of Monterey Bay (Proc. Calif. Acad. Sci., 2nd ser., VI, 1896, p. 163), writes of *Menopon*

titan: "These large conspicuous parasites are found not alone among the feathers of the host, . . . but also abundantly clinging to the inner surface of the gular pouch. . . ." In a letter dated September 25, 1930, Dr. Kellogg writes that he would "think it not at all unlikely" that this behavior of the pelicans "might be caused by an attempt on the part of the birds to rid themselves of the irritating parasites", and he adds that "very often ten or twelve of these sharp-clawed, sharp-jawed little parasites may be found clinging to the membrane of the pouch and surrounded by a blood patch which indicates a very real degree of irritation."

Young pelicans were seen in the nest for the first time on June 12. However, the brooding parent, of course, completely covers the very young birds except when feeding them, and therefore, because of the narrow range of the telescope, newly hatched birds might have been overlooked on previous observation days.

Fig. 14. California Brown Pelicans on their nests on island near Point Lobos, Monterey County, California, May 29, 1929.

Naked young were observed being fed on June 14. The adult was in a posture of brooding, with the head turned back and the bill, with widened lower mandible, poked into the nest. The young were beside her, sometimes reaching up into the pouch, but for the most part picking their food from near the end of the bill. Violent wretching movements were apparently necessary for the parent to bring forth food. Except for the fact that I did not always definitely observe the widened mandible, this was the typical way in which all the parents fed their small young. Sometimes, as was once noted at a particular nest (June 17), the motions of the adult's bill were enough to move considerably, or even dislodge, the sticks of the nest into which it had been thrust. After being fed, on June 21, one of the down-covered chicks of the latter family stood near the edge of the nest and flapped its featherless wings, in miniature imitation of its parents.

Definite display of hostility between pelicans and Western Gulls was observed twice. An adult pelican, sometimes assisted by a neighbor, resting on the north knoll (June 21, 1929) was seen lunging out with its long neck and snapping bill at a gull hovering in air not far out of reach. The latter was attempting to come to a young one of its species sitting on the ground a few feet from the pelican's legs but well under the range of its out-stretched neck and formidable bill. Several times the gull was forced to retreat and land about six or eight feet away, but always would flutter up again and hover over its (apparent) offspring, only to be warded off by the pelicans.

The other instance of antagonism occurred on the occasion of our third landing on the islet, August 4, 1927. (See Condor, *loc. cit.*, p. 249, note.) The eight well-grown but still flightless pelicans would move off when we approached too closely, but stood quietly if we halted at a slight distance. While one bird was standing thus, a Western Gull swooped down close to it several times and at each passing dealt a vicious blow on the head with its beak. One or two of these angry assaults soon brought forth a small amount of blood.

Fig. 15. FLIGHTLESS YOUNG CALIFORNIA BROWN PELICANS. POINT LOBOS IN BACKGROUND; AUGUST 4, 1927.

On June 30, 1929, the islet was visited again, and of the 137 pelicans' eggs discovered on May 29, 78 were found to have hatched and the emerging young to be still alive. Although most of them were covered with down, a few were still in the naked stage. The larger of the young stretched forth partly open bills toward me as I walked among them. The rami of their mandibles were somewhat distended and they emitted the characteristic young pelican cry, hoarse and rasping. Whether these were defensive attitudes and actions, or those of beggars for food from a large approaching figure, I failed to determine.

The Brandt Cormorants of the main island had apparently given way to the gulls and the pelicans. No eggs or young and hardly a trace of their nests seen on May 29 were to be found, although the colony on the outboard rocks seemed to be flourishing.

With so great an increase over the 1927 batch (from 10 nests with eggs to 55), let us hope that this northern outpost of breeding California Brown Pelicans may flourish, in spite of such complete setbacks as occurred in 1928.

Princeton, New Jersey, October 20, 1930.

BIRD REMAINS FROM THE KERN RIVER PLIOCENE OF CALIFORNIA

WITH ONE ILLUSTRATION

By LOYE MILLER

There were lately placed in my hands by Dr. Chester Stock, of the California Institute of Technology, two fragmentary bird bones that are of much interest. First of all, our knowledge of the Pliocene avifauna of California is but meager and anything that adds detail to the impressionistic picture is most welcome. Secondly, those Pliocene horizons that have yielded bird remains have, with one exception, been marine deposits and do not include land birds, whereas our Pleistocene avifaunas are nearly all from land-laid deposits. The formation here discussed is seemingly a fluviatile deposit and it contains a fairly rich mammal fauna upon which age determinations are based with a fair degree of confidence. A third factor of interest lies in the relationships of the species recorded.

The remains were collected by field workers of the California Institute of Technology in their station number 49 on Pozo Creek—Kern River Divide, Kern County, California, approximately nine miles northeast of Bakersfield in SE ¼ of Sec. 23, T. 28 S., R. 28 E., Mount Diablo principal meridian. The formation is a series of land-laid continental beds of seemingly fluviatile or lacustrine origin. Some twenty species of mammals have been identified from the locality, including *Pliohippus, Merychodus, Bassariscus antiquus,* camels, rhinos, and peccaries. From their studies of these mammalian remains, Stock and Furlong consider the beds to be of middle or lower Pliocene, and to represent a stage closely approximating the Ricardo beds which lie farther to the south and on the opposite side of the Sierran divide. The only bird yet recorded from the Ricardo is the goose, *Branta howardae.* Both species here discussed are diurnal raptors.

Vultur kernensis, n. sp.

Type specimen.—Number 454, Calif. Inst. Technology; distal portion of humerus (fig. 16), Pliocene of Kern River, California. Characters essentially those of *Vultur papa* (Linn.), but much larger and relatively shorter.

The only known specimen of the type is very beautifully preserved except for rather remarkable local distortion in two places. The whole brachial depression has been crushed in without seemingly distorting the opposite side of the bone, and the entire trochlear assembly has been thrust proximad for a millimeter or two. The attachment of the brachialis anticus is, however, fairly well defined, and the condyles retain their form quite accurately. The most distal pneumatic foramen is overshadowed by the internal condyle, but it is readily discernible with closer scrutiny.

Compared with *Vultur papa* the type conforms in general form and curvature except for its greater size and robustness. The foramina in the brachial depression vary extremely in a series of six humeri of the recent bird examined, even showing great diversity between the two sides of the same individual. Within this range of variation the fossil easily falls. The ectepicondylar prominence is also quite variable in the sharpness of its demarcation. In the fossil specimen this sharpness is accentuated to a slight degree by the proximal thrust of the articular assemblage, but after due allowance is made for post-mortem distortion, the ectepicondylar prominence appears more positive than in the Recent bird.

At the proximal end of the fragment there appears just at the line of fracture, the rounded papilla that terminates the deltoid crest in all the Cathartiformes except *Teratornis.*

The presence of a King Vulture in the early California Pliocene is of much interest to the writer of this article, who has worked with the group of American vultures during a span of many years. Tropical America is apparently the center of the familial area of the Cathartidae, and from this center various species range more or less widely. The most closely restricted member, until human agency appar-

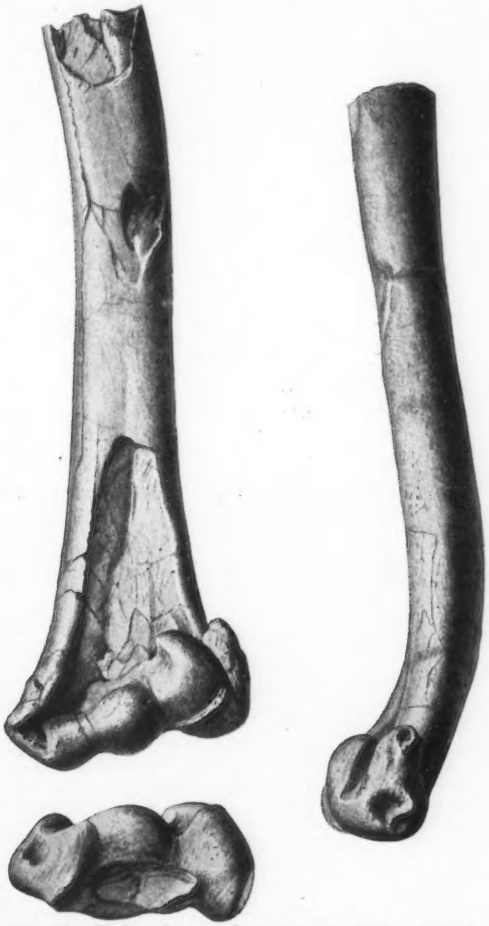

Fig. 16. *Vultur kernensis*, TYPE SPECIMEN, APPROXIMATELY NATURAL SIZE. HUMERUS, FROM PLIOCENE, KERN RIVER, CALIFORNIA.

ently reduced *Gymnogyps*, was the King Vulture (*Vultur papa*). A closely related bird is reported from the Pleistocene cavern deposits of Brazil (Winge, O., Fugle fra Knoglehaler i Brazilien, Museo Lundii, 1887). Fossil cathartids are abundantly recorded from Pleistocene strata in California and two species are reported from the Pampean Pleistocene of South America.

The assignment of an extinct genus *Psilopterus* from South American Pliocene to the cathartine relationship has already been considered as wholly uncertain (Miller, L. H., Univ. Calif. Publ. Bull. Dept. Geol. Sci., 7, 1912, p. 88). The Kern River specimen represents the most ancient record of the group in California. Wetmore (Proc. Colo. Mus. Nat. Hist., VII, 1927, pp. 1-14) has carried the family record back to Oligocene time by recording two genera from Colorado. Gaillard's (Ann. de l'Univ. de Lyon, n. ser., 1, Sci. and Med., fasc. 23, 1908) record of *Plesiocathartes* from the Oligocene of France represents the only known wanderer to the old world. We may then look upon the present familial area as a mere remnant of a once extensive realm.

Dimensions of *Vultur kernensis*:

Transverse diameter through condyles	38.7 mm.
Least transverse diameter of shaft	15.3 mm.
Dorso-ventral diameter of shaft	12.1 mm.

Parabuteo (?), sp.

The other avian specimen from the collection is the distal end of the tibia of a buteonid hawk. The edges of the condyles are unfortunately corroded badly so that the finer details are lost and ratios of various diameters are not determinable exactly. In general it may be said that the bone is relatively wide and thin when compared with typical *Buteo* as exemplified by *B. borealis*. The area just above the outer condyle and external to the tendinal bridge shows a distinct depression extending up the bone farther than is seen in buteonids at hand and is most nearly approached by *Parabuteo unicinctus*.

From *Urubitinga enecta* Wetmore, the specimen differs in being thinner and wider and the two condyles are more nearly equal in size when viewed from the distal end.

From *Buteo typhoius* Wetmore, it differs in the same characters. The size is much less than in either of the last named fossil species.

In all characters that are sufficiently well preserved, the specimen resembles *Parabuteo unicinctus*, but definite assignment to the genus is not considered to be advisable.

University of California at Los Angeles, December 24, 1930.

FROM FIELD AND STUDY

Thrasher Psychology.—On the morning of June 13, 1930, in Balboa Park, San Diego, I watched a California Thrasher (*Toxostoma redivivum*) searching for food, and the actions of this bird seem to me worth recording. It was crippled in the right leg by a wound on the heel, and also half of the tail feathers were missing. The injured leg was not used, but was carried drawn close up to the body. When first seen, the thrasher carried in its beak a large gray lepidopterous larva of the type generally known as "cutworm". As I watched, it deposited the insect on the ground and, with a few quick strokes, sunk a pit in the soft sand to the full length of its beak. Failing to uncover any food, the bird picked up the caterpillar which it had dropped and moved to a new site. The thrasher did not seem to dig at random but rather appeared to select spots with care. However, during the ten minutes or so that I watched, it tried some fifteen or twenty different spots, all within the radius of four or five feet, but failed to make a find. The cutworm was picked up and carried from one site to another as the work continued.

The big beak served admirably for digging in the soft sand which, during the excavating, was often thrown several inches. Finally, the bird accidentally covered up the larva which it had been carrying, when, with scarcely a glance around, it moved to a new site and continued the search. No attempt was made to rediscover the lost titbit, but the bird continued the futile digging of pits. Eventually the search was abandoned and the thrasher flew away.

During the first part of these observations I was impressed with what seemed to be ability on the part of the thrasher to remember each time to pick up the cutworm and move it from site to site. This does not, however, explain its subsequent indifference to the loss of the insect. Further thought has convinced me that the cutworm was moved each time, not through the thrasher's having remembered its possession, but rather because the bird's quick eyes each time discovered the object before the move was made. When the cutworm became covered up and no longer visible, there was no memory stimulus to cause the bird to search for its loss; but instead it continued its activities as though the incident had not occurred.

To me this would indicate that the memory faculty is either completely wanting or but very poorly developed in the California Thrasher.—FRANK F. GANDER, *San Diego Society of Natural History, Balboa Park, San Diego, California, December 26, 1930.*

The Kingbird Nesting over Water.—In North American ornithological literature there are many references to the nesting habits of the Kingbird (*Tyrannus tyrannus*), but in only a few instances is attention called to the fact that this flycatcher sometimes selects for a nesting site a tree, stump or bush that is surrounded by water and at more or less distance from dry land. One such reference is found in a paper on the birds of Mason County, Michigan, where the author, Dr. R. W. Chaney (Auk, 27, 1910, p. 274), remarks that the Kingbird might be considered "almost aquatic", as it "invariably" built its nest on a stump that was surrounded by water, "often at a considerable distance from the shore"—a remark that has been quoted by other writers. Of the references looked up by the present writer, in only one is given any definite idea of the distance from shore to the nest, in this case "from 25 to 200 feet." Another matter omitted is the height of the nest above the water, which may have been sufficient to eliminate all danger of submergence from floods.

Under these circumstances the conditions under which the Kingbird was nesting in the Kootenay Valley, southeastern British Columbia, seem worthy of mention. The Kootenay River flows through this valley on its way to the lake of the same name, with so little fall for a long distance that the water of the spring freshets backs up for many miles and spreads out upon the bottom-lands over a wide area, the crest of the flood usually occurring toward the middle of June. A party from the California Academy of Sciences visited this region in the spring of 1928, when the flood was not only a very high one but came unusually early, the peak being in the third week of May.

On the banks of the Kootenay River stand cottonwood and pine trees, with small bunches of these trees scattered out like islets in the flood, while dotted over the

bottom-lands are scrubby willows, more like bushes than like trees, growing singly or in small clumps, that reach a height of ten to twenty feet above the ground. At the end of May, 1928, these willows were standing in six to ten feet of water, with the unsubmerged branches just budding out as the flood reached its height. It was at this time that the Kingbirds appeared upon the watery scene and immediately began to build nests in these willows, half a mile and more from shore. (See fig. 17.) Of the three nests found by the author the lowest was about one foot from the water, the other two being one and a half and three feet high, respectively. These nests were in the line of willows indicated by arrows on the photograph. The two other members of the Academy party made trips on May 31 and June 4 over parts of the

Fig. 17. FLOOD OVER BOTTOM-LAND AT CRESTON, B. C., MAY 25, 1928; ARROWS SHOW WHERE KINGBIRDS WERE NESTING.

flooded area still farther out, and reported kingbirds quite numerous there, also nesting. The nests examined by the writer were built of dead twigs from the willows themselves, with rather a "sketchy" lining, mostly of willow catkins.

These observations were made at Creston, British Columbia, about fourteen miles above Lake Kootenay, from which the flood waters extended even into northern Idaho. If the Kingbird was building nests over the water all along this area the bird might well be called "almost aquatic"!—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, California, December 1, 1930.*

Emperor Goose in Humboldt County, California.—We have noted that fragments of an Emperor Goose (*Philacte canagica*), found dead on the beach south of Buhnes Point, Humboldt Bay, March 1, 1925, are contained in the Museum of Vertebrate Zoology at Berkeley, California, under no. 52036, by gift from Mr. Franklin J. Smith of this city. Another specimen of Emperor Goose, taken by a local game hunter near Samoa, Humboldt Bay, December 3, 1927, which is in our collection, seems worthy of record. We, also, intend to present this specimen to the above Museum [later, no. 57187 there].—LAWRENCE ZERLANG and J. THOMAS FRASER, JR., *Eureka, California, January 24, 1931.*

The Streaked Horned Lark Breeds in Northwestern California.—Through the special effort and generosity of Mr. George D. Atwell, of Eureka, the Museum of Vertebrate Zoology possesses four horned larks from Humboldt County which I identify as *Otocoris alpestris strigata.* Mr. Atwell collected these on the prairie-topped divide

at about 1800 feet altitude between Bear River and Eel River in Humboldt County about seven miles from Capetown. The birds there numbered about fifty pairs in the early summer of 1929. One of the birds, a male, no. 53976, was taken on May 9 with a nest and four fresh eggs which Mr. Atwell collected. Another of the four birds is a juvenile (no. 53983) not quite fully grown, taken June 2. In so far as known to Mr. Atwell in May and June, 1929, this colony, occupying a territory about one by one-half mile in extent, was the only one in Humboldt County.

While perhaps not extreme for *strigata*, the three adult males collected by Mr. Atwell are, together, as regards both measurements and color tones, much nearer that race than any other; indeed I cannot distinguish one of them from a breeding male from Salem, Oregon. The juvenile is darker colored than any juvenile, of whatever race, I have seen from elsewhere in California.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, December 7, 1930.*

Occurrence of the White-throated Sparrow in the San Joaquin Valley, California.—During a day's field work in the Porterville district of Tulare County, California, in the fall of 1930, a sparrow with conspicuous whitish color on the chin was seen in company with migrating fox sparrows. It was watched with much interest for several minutes while feeding on the ground with the fox sparrows, which birds apparently "had a grudge" against the odd one and continually made advances when it approached too closely to any one of them. I was not certain as to my identification of this bird at sight and collected it for positive proof.

This specimen, number 748 in my collection, was an immature female White-throated Sparrow (*Zonotrichia albicollis*) and was taken on October 12, 1930. The exact locality of the occurrence was about ten miles east of the town of Porterville, in the willow association adjacent to the Tule River. It was interesting to note that the bird was in the company of fox sparrows and not with other zonotrichias, as seems to be the general rule when White-throated Sparrows have been recorded previously in California.—J. STUART ROWLEY, *Alhambra, California, November 23, 1930.*

Western Mockingbird, Oregon Vesper Sparrow, and Merrill Song Sparrow in Sonoma County, California.—On August 17, 1930, two Western Mockingbirds (*Mimus polyglottos leucopterus*) were seen in chaparral (composed mostly of *Ceanothus jepsonii, Quercus durata, Rhamnus californica,* and *Umbellularia californica*) on a ridge northwest of Fitch Mountain, near Healdsburg. The appearance of a Mockingbird in this county is interesting, and the early date of occurrence, August 17, makes it even more so. One of these birds was collected (now no. 56243, Mus. Vert. Zool., Berkeley).

A Merrill Song Sparrow (*Melospiza melodia merrilli*) male, was collected near Healdsburg, California, October, 1922. This is a very westerly record, as the race *merrilli* occurs east of the humid coast belt. This specimen is now no. 56260, Mus. Vert. Zool.

An Oregon Vesper Sparrow (*Pooecetes gramineus affinis*), male, was seen on October 13, 1930, about two miles north of Healdsburg. It was with a flock of about twenty Western Savannah Sparrows (*Passerculus sandwichensis alaudinus*) most of which were perched on a fence separating two fields of dead grass. Only one Vesper Sparrow could be recognized in the flock. It was collected (now no. 56258, Mus. Vert. Zool.). Healdsburg is in the north-central part of Sonoma County.—C. W. EDGE, *Healdsburg, California, December 9, 1930.*

The Barrow Golden-eye on Lake Merritt, Oakland, California.—On the afternoon of October 28, 1930, while studying the ducks on Lake Merritt, with Gordon Bolander, I noticed what appeared to be a Barrow Golden-eye (*Glaucionetta islandica*). Positive identification was at this time difficult because of the duck's distance from shore. On November 28, when we again visited the lake, the Golden-eye was still present. With the aid of binoculars we were able to study the duck and note the actions and the characteristic markings. The black back with a row of white spots on each side, the black line in front of the bend of the wing, extending down to the waterline, and the slender white crescents on the sides of the head in front of the eyes, were plainly seen. The head was high and crested and at close range the purplish iridescence could be discerned.

American Golden-eyes were present in fair numbers, thus affording striking contrasts and comparisons. The Barrow Golden-eye shows more black than white on the body and it sits lower in the water; and when resting, or swimming, its tail is held at an upward angle. Between dives the tail is held below the water and the bird rests still lower.

On December 13, I noticed that a female Golden-eye was following the male Barrow closely. Every time the lake has been visited since, the female has been found following the male. On December 16, I noticed that every time the duck came up from a dive he had something in his bill. He would stay half submerged and proceed to shake his bill and its contents violently until free from mud, before swallowing the contents.—LESLIE HAWKINS, *Oakland, California, December 19, 1930.*

The Least Tern in the Upper Missouri Valley.—The Least Tern (*Sterna antillarum*) is a regular summer resident and breeder in the region along the Missouri River where the states of Nebraska, Iowa, and South Dakota meet. North of this area the Least Tern does not seem to have been reported, except for the single record of a stray bird taken on the Yellowstone River, by Lieutenant Warren's Expedition in 1857.

On May 30, 1929, the writer saw five or six Least Terns at Lake Andes, South Dakota, about 150 miles northwest of Sioux City, Iowa. May 30, 1930, was also spent at Lake Andes, and the Least Tern was again listed. The birds probably nest on some sand-bar in the Missouri River and fly the five miles from the river to the lake to feed.—WM. YOUNGWORTH, *Sioux City, Iowa, January 20, 1931.*

The California Condor in New Mexico.—Among fragmentary bird bones from New Mexico submitted for identification recently by Mr. Edgar B. Howard of the University Museum, University of Pennsylvania, there is found a broken humerus and part of the shaft of a femur of the California Condor (*Gymnogyps californianus*). These specimens were obtained during archeological investigations of a cave located, according to information supplied by Mr. Howard, on the south fork of the Three Forks in the upper part of Rocky Arroyo, about fifty miles by road west and somewhat north of Carlsbad, New Mexico. Mr. Howard states that the bird bones were scattered with bones of a horse, *Equus fraternus*, an antelope, *Tetrameryx shulleri*, and a bison, together with baskets, sandals and other material of human manufacture in the loose earth of the cave floor eighteen inches to nearly three feet below the surface. Many of the bones were obtained at levels above which baskets were found.

The humerus includes about half of the lower part of the shaft, with the greater portion of the distal end missing. Sufficient is present to indicate the identity of the specimen without question and to show that it is similar in its details to the modern bird. The femur includes only the middle portion of the shaft, a fragmentary bit that in size and form, and particularly in the conformation of its *linea aspera*, is identical with skeletons at hand for comparison.

The humerus is stained light brown, while the femur is paler, nearly white in color. Neither shows any indication of fossilization from infiltration of mineral matter; in fact in texture and color both specimens resemble modern bones with which they were compared during identification.

The age of these specimens from the data at hand is uncertain, but it may be remarked that in general appearance they are closely similar to bird bones that I have studied in recent years from cave deposits in Porto Rico and Haiti whose age has been placed tentatively at from five hundred to two thousand years. The condor bones from New Mexico coming from a more arid region possibly are older, but they can have no great antiquity. Their occurrence must be considered as natural in that it is believed that they come from a bird inhabitant of the region where they were found, since it can hardly be supposed that these bones would be transported by Indians for any reason from the present range of the California Condor. They represent a considerable extension of range for that species which, from this evidence, seems to have been distributed throughout the southwest since men came to America.

Because of the biological interest that attaches to these two bones the University Museum, through the Director, Mr. Horace H. F. Jayne, has deposited the specimens in the osteological collections of the Division of Birds in the United States National Museum.—ALEXANDER WETMORE, *United States National Museum, Washington, D. C., December 12, 1930.*

An Early Name for the Allen Hummingbird.—René Primevère Lesson formally bestowed the name *Ornismya Sasin* upon a kind of hummingbird from "La Californie, la côte N. O. d'Amerique" (Histoire Naturelle des Oiseaux-Mouche, "Mai 1829", p. xxx; *idem*, 1830, pp. 190-193, pls. 66, 67). It was evidently in Lesson's mind merely to give a more fitting name to the species even though already technically named *Trochilus rufus* by Gmelin. The name first given to the species was a vernacular, "sasinne" or "sasin", used in the text of Captain Cook's third "Voyage", French edition, for the Rufous Hummingbird discovered at Nootka Sound. All this is shown in the synonymy (p. xxx) and discussion (pp. 190-191) given by Lesson; yet the only actual specimen he had in hand, and upon which his main description is based and which is clearly figured in the first plate (66), came from California and belonged to the species long years later named *Selasphorus alleni* by Henshaw. No matter if Lesson's general concept, through mistaken interpretation of the several previous authors he cites, was of a composite nature, embracing two or more species of hummingbirds, his first-given characterization, his detailed description, and his first plate all apply definitely to the one species—*alleni* of our recent American literature.

The critical phrases in the descriptive text having to do with the green back of the bird are: "teint de vert sur le dos" (p. xxx); " . . . se mêle du vert-doré sur . . . le dos" (p. 191). The tail feathers are commented upon as slender, and there is no mention of notches on any of them: "la queue . . . composée de rectrices faibles et terminées en pointe . . . " (p. 191).

The first plate (66), "Le Sasin Mâle adulte", shows an adult male Allen Hummingbird—back shown as green; tail-feathers displayed from beneath, all narrow with no indication of the breadth and notching which pertains to *Selasphorus rufus*. One has only to put a specimen each of "*alleni*" and *rufus* alongside the figure on Lesson's plate 66, to see that what is figured, even though not altogether accurately, is the Allen Hummingbird.

The second plate (67), with legend "Le Sasin, Jeune âge", looks to be neither a Rufous nor an Allen. It is said (pp. 192-193) to have been reproduced from a figure from Vieillot drawn originally from a specimen in the Leverian museum in London. This subsidiary plate with accompanying remarks can properly be discarded in the present connection.

Lesson also includes, subsidiarily, descriptive remarks concerning the female, but these remarks are second-hand, after Latham. They, too, even though appertaining to another species than "*alleni*", have no special bearing here.

As to the type locality of his *Ornismya sasin*, Lesson makes a most significant statement, to the effect that the adult bird serving as the basis of his description was transmitted to him by the Duke of Rivoli: "L'individu adulte qui a servi à notre description nous a été communiqué par M. le duc de Rivoli" (p. 192). On a previous page Lesson remarks that everything known leads to the belief that this species is found continually in the "environs de Monterey et de San-Francisco" (p. 190).

In his Supplement, issued (most of its "parts" in 1831) in continuation of the work cited above, Lesson gives three additional plates (11, 12, 13) of "Le Sasin", with appertaining text (pp. 121-124). There is evidence here, again, that more than one species are dealt with under the one name, *Ornismya sasin* (plate 11 looks like a female Black-chinned Hummingbird). But the important thing now is that apparently all the specimens here additionally described were from California, and of one of them the following definite statement is made: "L'individu que nous avons fait figurer comme étant une jeune femelle du Sasin, avait été rapporté de la Californie par le docteur Botta, que l'avait etiqueté sur les lieux . . . " (p. 121).

It would thus appear exceedingly probable that all the California-taken hummingbirds reaching France about this time, including the adult male type of *sasin*, were collected by Paola Emilio Botta, and very likely at the same place and time

as the type of *Ornismya anna* described by Lesson in the same volume as *sasin* and which also was in the Rivoli collection. This place and time, as worked out most carefully by Dr. T. S. Palmer (Condor, 19, 1917, pp. 159-161), was San Francisco, February, 1827.

More might be said along this line, but enough is presented for the purpose of establishing the application of Lesson's name. This action, however, is not at all new, as the gist of my demonstration was set forth clearly by Hartert, 36 years ago (Novitates Zoologicae, 1, 1894, pp. 63-64); also the situation is apparent in the synonymy given by Salvin (Cat. Birds British Mus., 16, 1892, p. 394), and there may be other foreign references to the same effect that I do not know about. The curious thing is that Americans have either overlooked Lesson's description (save for Ridgway's inclusion of the name with a question mark in the synonymy under *Selasphorus alleni*) or ignored it. In all the nomenclatural hubbub raised by Elliot when Henshaw named *alleni* I find no adequate mention of Lesson!

Unless the case as here set forth be reversed by evidence that I do not know about, the hummingbirds in question should hereafter be called

1. *Selasphorus sasin sasin* (Lesson). Migratory Allen Hummingbird.
2. *Selasphorus sasin sedentarius* Grinnell. Non-migratory Allen Hummingbird.

—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, December 13, 1930.*

White-tailed Kites in Sonoma County.—North American White-tailed Kites (*Elanus leucurus majusculus*) have been observed as residents of Alexander Valley, about five miles north of Healdsburg, for a number of years. During the falls of 1924, 1925 and 1926, while hunting quail along the Russian River, I have on many occasions seen from one to five kites. It is believed they nested there until at least 1928. I have never seen a nest but think that is due to the fact that I did not try to locate one at that time.

Of a group of five kites seen in 1925, two appeared to be mature and three young. A resident of the valley states they bred there until 1928 after which date no mated pair was seen in his vicinity. They occupied the valley between the Russian River and the foothills about a mile and a half distant. Much of the valley is in prune orchards and the remainder is pasture land in which are many large valley oaks. The kites were often seen in trees or flying along the river.

During the past year only one has been seen. It still occupies the same territory and is observed on almost every visit to this locality. Whether the other kites have permanently migrated to another region or have fallen victims of gunners or other misfortunes is not known. Unlike other species of the hawk family, they were rather tame and allowed close approach. Some gunners shoot hawks without distinguishing between those that are beneficial and those that are harmful. There are a few hunters who, simply for practice, will shoot any large bird in flight. As quail are found in the territory of the kites I am afraid these rare, beautiful, and beneficial birds have been reduced in this section to a solitary survivor.—C. W. EDGE, *Healdsburg, California, December 9, 1930.*

Specimens from Point Barrow, Alaska.—Among the specimens collected the past season by Charles D. Brower at Barrow, Alaska, for the Chicago Academy of Sciences, were two forms new to our collection of birds from this northern point. A female Mountain Bluebird (*Sialia currucoides*) was secured at the village, June 5, 1930, and several Slender-billed Shearwaters (*Puffinus tenuirostris*) were collected on the sea ice during November and December, 1929. Three males of the latter species were sent to the Academy, taken November 9 and December 10. Mr. Brower writes that there were many bands off-shore during the late fall months, but that they were too wild to be approached. The specimens collected were caught in the ice, some frozen solidly, and others still alive, too weak to rise. The birds were, according to Mr. Brower, very thin.—ALFRED M. BAILEY, *Chicago Academy of Sciences, Chicago, January 1, 1931.*

EDITORIAL NOTES AND NEWS

Arrangements for the Sixth Annual Meeting of the Cooper Ornithological Club to be held in the San Francisco Bay region are being completed by the local committee of the Northern Division. Sessions for the reading of papers are scheduled for May 15 and 16, 1931, under auspices of the California Academy of Sciences and the University of California. Pleasant memories of the ever increasing gatherings at the Cooper Club annual meetings prompt the hosts of this year's meeting to invite and predict a still greater attendance, with the added stimulus to the study of birds which such numbers will inevitably call forth. Members are urged to draw up plans at once for the presentation of papers in order that early replies giving exact titles may be made on the blanks shortly to be distributed by mail. Advance suggestions as to program indicate that the sessions will contain papers of varied interest in the fields of life history, physiology, anatomy, paleontology, distribution, and systematics. A session especially designed for the presentation of papers requiring motion picture facilities is planned. Social gatherings will occupy the evenings of the days for which the scientific sessions are scheduled. This year the Museum of Vertebrate Zoology in its new and ample quarters in the Life Sciences Building offers improved opportunities for the study of its bird collections. Visitors from other regions will be interested to inspect these and perhaps to avail themselves of the research facilities in ornithology provided here. The tenth annual meeting of the Board of Governors will be held in connection with the annual meeting of the Cooper Club. Further information concerning any feature of these meetings may be obtained from the Chairman of the Local Committee, Mr. Alden H. Miller, Museum of Vertebrate Zoology, University of California, Berkeley.

Mr. Harry Harris, author of the exhaustive biography of Robert Ridgway and several other noteworthy scientific and literary contributions, has now undertaken to gather together materials for a monographic account of the California Condor, ultimately to be published in the Pacific Coast Avifauna series. For some years Mr. W. Lee Chambers has been gathering data on this bird, and all of his resulting notes have generously been turned over to Mr. Harris. Other Cooper Club members have done likewise, and there are doubtless yet others who will respond in similar fashion. This undertaking may thus be looked upon rather definitely as a Club enterprise. Mr. Harris will, we feel sure, welcome assistance also from any source whatsoever, to the end that his "Monograph of the California Condor" will be the last word in completeness.

Many are the inquiries that come to us as to the probable time of appearance of the new, fourth edition of the American Ornithologists' Union Check-list of North American Birds. These frequent inquiries indicate wide demand for a down-to-date, authorized set of names for our North American birds; for twenty years have now gone by since the publication of the third edition. To those of us who know of the huge amount of work necessary to the preparation of the new Check-list, far greater (by perhaps double or treble) than ever before, the seeming delay in its completion is not surprising. Furthermore, fully ninety per cent of the work of compilation, checking and rechecking, and verifying of proof corrections, devolves upon one man, namely, the chairman of the A. O. U. Committee in charge, Dr. Witmer Stone. Certainly painstaking, slowly attained accuracy in final output is of greater long-time import than speed of publication. Even so, it can now be announced that the new Check-list is entirely in corrected galley proof stage, with paging in early prospect.—J.G.

The Western Bird Banding Association announces a change to new quarters. Since its organization meeting in December, 1924, a large proportion of the active banders of the West have centered about Los Angeles, with the result that the general meetings and most of the corporate activities of the organization have taken place in Pasadena. There, the homes as well as the stations of such pioneers and organizers of the science as the Micheners and the Laws have become traditional headquarters for banders and

banding, and in many senses they are likely to remain so. More recently, however, the San Francisco Bay region has shown signs of new interest, especially in the direction of banding in relation to serious research, and since the southern group feel that for the moment further expansion may be more rapid elsewhere, the decision was made at the general meeting of February 8, at Pasadena, to accept the ready hospitality of the Museum of Vertebrate Zoology, at Berkeley, and to transfer the headquarters to that most advantageous point. The new slate of officers elected for this purpose includes T. T. McCabe, President; E. L. Sumner, Sr., Treasurer and Business Manager; Elinor B. McCabe, Secretary; Amelia S. Allen, Vice-president; and Mary M. Erickson and E. Lowell Sumner, Jr., Councilors. The Association may be addressed at the Museum for all purposes, including emergency banding supplies, records, and matters pertaining to the News. The Association has been appealed to by the Biological Survey, both for information to be gained through banding on the movements of the red-winged blackbirds and the American coots of California, and for the development of trapping technique to make such banding possible. This information is acutely needed in connection with agricultural problems, notably that of the Sacramento Valley rice growers. The Association is at work on these problems, corporately, and it urges banders within the State to band as many of both forms as may be possible and to correspond with the headquarters at Berkeley, either to assist by suggesting methods and localities of great concentration, or to obtain assistance through such information as has already been gained.—T. T. McC.

California Assembly Bill no. 776, now referred to the "Committee on Governmental Efficiency and Economy," is "an act to adopt the California valley quail as the official state bird and avifaunal emblem of this state." The sportsmen's attitude toward this bill is indicated in the following probably "inspired" article which appeared in the San Francisco *Chronicle* of December 22, 1930. "It is a serious question in the minds of many sportsmen if they want the quail elevated to this honored position. No hunter will deny the fact that there is no finer game bird. But it is feared that once it is made the State bird, the next move on the part of sentimentalists will be to have the bird taken from the game bird list. Right now, when the attention of sportsmen in all sections is being turned to improving quail hunting conditions, it would be very unwise to make the quail a nongame species, and thus lose the support of the one group that is financially interested in aiding it." It would thus appear that support for this bill to make the California Quail the state bird will have to come from "sentimentalists," such consisting of citizens whose prime interest in the birds does *not* end with the killing of them! We have no ground for prophesying at this date what the legislature will do with the bill; but it behooves each individual and group desirous of its passage to make urgent appeal in its behalf to the proper representatives at Sacramento. The bill is, of course, a wholly worthy one—the result of several years of educational campaigning in which the Cooper Club has taken an active part. The sponsors of the bill in the State Legislature are Assemblywoman Miss Eleanor Miller of Los Angeles and Assemblyman Charles W. Fisher of Oakland.—J.G.

Our comment in the January CONDOR (p. 40) upon the mockingbird's "powers of mimicry," as to whether the bird really possesses such, has stimulated some pointed enquiry. Those who wish to pursue this subject farther will find evidence and much to think about, on one side of the question or the other, in Donald R. Dickey's article entitled "The Mimetic Aspect of the Mocker's Song" (Condor, XXIV, 1922, pp. 153-157) and in Charles W. Townsend's article on "Mimicry of Voice in Birds" (Auk, XLI, 1924, pp. 541-552). As is usual in matters of debate, the critical reader must make himself sure of the exact meanings intended by the different authors in their use of words.

The Museum of Comparative Zoology announces that the first volume of a "Check List of the Birds of the World", by James Lee Peters, is now in press and will be issued shortly. The classification followed for the higher groups is that adopted by Dr. Wetmore, with the sequence of genera and species according to the author's own ideas where no authoritative treatment has been published. The first volume will contain about 300 genera and 1700 species and sub-

species covering the following orders: Struthioniformes, Rheiformes, Casuariiformes, Apterygiformes, Tinamiformes, Sphenisciformes, Gaviiformes, Colymbiformes, Procellariiformes, Pelecaniformes, Ciconiiformes, Anseriformes, and Falconiformes. The only recent attempt to list most of the species in these groups was that made in the first volume of Sharpe's "Hand-list", published in 1899 and consequently now thirty-two years old and out of date. It is expected that at least ten volumes will be required to complete the work. The second volume is in active preparation by Mr. Peters and preliminary work on others is under way. Subscriptions are now invited and may be addressed to the Harvard University Press, Randall Hall, Divinity Avenue, Cambridge, Massachusetts. Price, five dollars per volume.

The Salton Sea Wild Life Refuge has been set aside by Executive order (dated November 25, 1930) as "a refuge and breeding ground for migratory birds." The area includes government lands in the southern basin of the Salton Sea, Imperial County, California, and it will be administered by the Biological Survey of the United States Department of Agriculture. "It will be unlawful to hunt within the area, or to trap, disturb, or kill any wild animal or bird of any kind; to take or destroy the eggs of any wild birds; [etc.]." We understand, further, that a move is now under way to make Death Valley, Inyo County, a National Park, to be administered under the same system as Yosemite, Sequoia and other National Parks. All of which is in the right direction in the interests of wild animal conservation and betokens success on the part of persons and agencies who are working quietly but effectively toward the realization of high ideals.

PUBLICATIONS REVIEWED

NOTES ON A COLLECTION OF BIRDS FROM ARIZONA AND NEW MEXICO, by Harry C. Oberholser. (Scientific Publications of the Cleveland Museum of Natural History, vol. 1, no. 4, December 31, 1930, pp. 83-124, pl. [colored] XVIII.)

In years past Dr. Oberholser has produced a series of systematic treatises upon various groups of birds which have been rightly regarded as among the highest in that type of study and which serve today as bases for any further investigation in the genera and species concerned. I, myself, have so habitually consulted his papers whenever they touched upon my own work that it was with the liveliest interest and anticipation that I opened the present "Notes" upon the birds of a region with which I am thoroughly familiar. And, most regretfully be it said, the paper was laid down with a feeling of sadness and disappointment—surely we have a right to expect more from the studies of one of our leading systematists. This annotated list might have been acceptable forty years ago as a report from virgin territory, but at the present time and from the regions covered it is a futile piece of work. Only as the product of an acknowledged authority is it deserving of attention.

In the introduction it is said that the Huachuca Mountains are "the classic collecting ground of Arizona," a phrase better applied to the Santa Catalina range; but nowhere in the paper is there the slightest recognition of other peoples' labors. The author's whole concern is with certain assemblages of specimens, which either are or are not representative of "good subspecies" and which file before him in hasty array to receive sweeping and final judgment as they pass. There are many statements throughout the paper that may be cheerfully accepted, yes—but these, too, are generally exasperating; for, like the Katydid, "Thou sayest undisputed things in such a solemn way!" It is needless to go into detailed criticism, of the stately approval of long-settled questions; of the kaleidoscopic shifting of names which must inevitably remain in the debatable class and eventually be applied according to some accepted compromise and not by condescending assertion; or of the arbitrary "rearrangement" of difficult groups here so lightly and impossibly re-classified.

My feelings are these: That in our North American avifauna we have pretty nearly enough names to go with any remarks we wish to make; that, of greater importance, there are underlying facts and deductions for the statement of which names should act as the vehicle, which are deserving of close study and which are assuredly of enthralling interest. Arizona in the past has been a rich field for such studies and it is childish to put forth a brief but formal and authoritative-appearing synoptic paper that ignores and

contradicts the work of men who have lived and labored with these problems for months or years.—H. S. SWARTH.

THE WOODPECKERS OF OKLAHOMA.[1]—In this forty-seven page pamphlet Professor Crabb has given, not only to the specialist in ornithology but also to the beginning student of birds, a condensed and rather complete account of sixteen species and subspecies of woodpeckers which he assigns to the state of Oklahoma. In the beginning he gives a brief account of the economic importance of the group. Here he considers all except members of the genus *Sphyrapicus* as being beneficial. All of the species of *Sphyrapicus*, he says, are more or less detrimental; then he adds a qualifying statement (p. 111) in which he says that the damage they do is more apparent than the good they do, thereby not really committing himself.

The author's discussion of the economic importance of the woodpeckers is followed by a brief statement of the characters of the family and an explanation of how to take the various measurements employed with study skins, certainly an aid to the beginner who is trying to identify birds. Next comes a general account of each species, in which he followed a uniform method of treatment throughout. The following order is employed: scientific name; common name, with A. O. U. number; range of species; description of call notes in many instances; measurements; detailed description of plumage of adult male and female, and of young; and a discussion of the habits of the birds. For data on food habits he draws freely upon information from other sources than his field notes, especially from Beal. However, much of his information on the habits of the birds he has gathered from personal observations made in the field. At the end of the paper is a list of twenty-five titles cited in the text.

Considering the paucity of comparative material available to him for the systematic treatment, and the fact that his earlier notes were destroyed by fire, I think that Professor Crabb is to be commended for this work. A few more illustrations possibly would have made it of more service to the teacher and to the student of birds in Oklahoma.

Unfortunately there are usually a few typographical as well as other errors in any publication. The most serious of these in the present paper is to be found on page 114 where the author attributes 100 genera of woodpeckers to North America. Also plate 1, in which he figures the hyoid and tongue arrangement in *Colaptes*, *Dryobates*, and *Melanerpes*, is inverted. The latter error is very probably the fault of the publishers. But, after all, we should not discount the real value of an important contribution because of a few minor errors that happened to creep in.—W. H. BURT.

[1] The Woodpeckers of Oklahoma, by Edward Drane Crabb. Publ. Univ. Okla., Biol. Survey, vol. 2, 1930, no. 3, pp. 111-158, 4 pls.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

DECEMBER.—The December meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday evening, December 30, 1930, at the Los Angeles Museum, Exposition Park, Los Angeles. About sixty members were present and President Willett was in the chair. The minutes of the November meeting of the Southern Division were read and approved and extracts from the minutes of the November meeting of the Northern Division were read.

The following applications for membership were read: Mrs. Robert C. Hill, Desert Sanatorium, Tucson, Arizona; Dr. Oliver L. Austin, Tuckahoe, Westchester County, N. Y.; Lony B. Strabala, Leetonia, O.; Arthur Goldfrank, 350 N. Stanley Ave., Hollywood, Calif., all proposed by W. Lee Chambers; and Pearl E. Post, Prescott, Ariz., proposed by Edward C. Jacot.

President Willett called on Mr. and Mrs. Clary to report on the progress being made toward the establishment of a game refuge on Salton Sea. Mr. Clary stated that they had not been able to learn much more than has been reported in the newspapers. He is not sure that a game refuge will do much to protect the game birds because of the tactics being practiced by the gun clubs there. If the ducks are not on the gun club grounds, so they can be shot, an airplane is sent out to find them and scare them up so they will fly to the gun club grounds. President Willett said he hopes the game refuge will be established so that it will protect the colonies of White Pelicans and other birds nesting on the islands in Salton Sea.

The Chair appointed as a nominating

committee Dr. Rich, Wright Pierce and Luther Little, with instructions to report at the January meeting nominees for the offices of the Southern Division for the ensuing year. A telegram from Dr. E. W. Nelson was read, expressing his regret that a severe cold prevented his appearing before the meeting. It had been announced that he would speak on the control of predatory animals.

President Willett opened the discussion on the resolution presented at the previous meeting in regard to the proposed ten-year cooperative program for the control of predatory animals. After careful consideration and expressions of opinion by many present, Mr. Glassell moved the adoption of the resolution. The motion was seconded and carried. The resolution is as follows:

Whereas the Southern Division of the Cooper Ornithological Club stands for the conservation of wild life in general; and

Whereas the experience of members of this club shows increasingly serious conditions for wild life, resulting from the extensive and often indiscriminate campaigns planned and sponsored by governmental executives, ostensibly for the control of animals occasionally detrimental, which campaigns especially through the use of poison are leading toward outright extinction of animals known to be beneficial; and

Whereas such destruction of harmless and beneficial wild life will be greatly increased by the adoption of the ten-year cooperative program for the control of predatory animals as provided in bills, number S. 3483 and H. R. 9599, now before Congress; therefore

Be it resolved that this proposed ten-year program should be abandoned; and

Be it further resolved that the executive officials of the Bureau of Biological Survey should: (1) Assume an impartial viewpoint, not stressing damage done by any species and underrating its benefits; (2) return to its former policy of recommending control only where need is shown on the part of the community at large, rather than in some special, minority interest; (3) develop field practice which conforms to stated official policy; and (4) abandon destructive poison operations (save in an emergency) in favor of a method less damaging to wild life in general.

The death of Dr. John Hornung of the Los Angeles Museum staff was announced by Mr. Willett who said that although Dr. Hornung was not a Cooper Club member the Cooper Club should know that all science has suffered a great loss in the death of this conscientious, painstaking worker.

Dr. Bishop read a clipping stating that scientists have found the cause of the duck malady. Mr. Glassell told of seeing about 500 Sandhill Cranes in stubble fields near Tulare Lake recently. Mr. Clary told of a Blue-footed Booby spending several days on a reservoir in Coachella Valley. Mr. Lusk told very briefly of some of his bird acquaintances in Arizona. Mr. Richardson told of his early start in ornithology in and about Los Angeles, beginning in 1875.

Adjourned.—HAROLD MICHENER, *Secretary.*

JANUARY.—The January meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday evening, January 27, 1931, at the Los Angeles Museum, Exposition Park, Los Angeles, with President Willett in the chair and about thirty-five members and friends present. In the absence of Harold Michener, the regular secretary, John McB. Robertson acted as Secretary pro tem. The minutes of the December meeting of the Southern Division were read and approved; no minutes from the Northern Division were on hand.

Applications for membership were read as follows: Stuart O'Melveny, 1233 Garfield Ave., South Pasadena, California, proposed by Loye Miller; Randolph Jenks, Mesa Ranch School, Mesa, Arizona, and L. Morgan Boyers, P. O. Box 2786, Stanford University, California, proposed by Mrs. Ben L. Clary; William Reid McManus, Memramcook, New Brunswick, Canada, proposed by W. Lee Chambers; Beatrice Maude Wise, Fort Jones, California, proposed by Gayle B. Pickwell; and R. A. Cumming, 610 East 64th Ave., Vancouver, British Columbia, Canada, proposed by Louis B. Bishop.

A letter from Dr. Charles W. Richmond was read. This letter was addressed to Mrs. Hilda W. Grinnell, Secretary of the Northern Division, and expressed his appreciation of the recent action of the Cooper Club in electing him to Honorary Membership.

Wright M. Pierce reported that the Nominating Committee appointed at the December meeting had selected the fol-

lowing slate of officers for the year 1931: President, J. R. Pemberton; Vice-president, Harold Michener; and Secretary, John McB. Robertson. President Willett asked if there were any nominations from the floor. Dr. Miller moved that the nominations be closed and that the Secretary be instructed to cast a unanimous ballot for the nominees; this was seconded by Dr. Bishop and the motion was carried.

In the absence of J. R. Pemberton, the new President, Ex-president Willett continued in the chair and introduced Milton P. Skinner, the speaker of the evening, who gave a very interesting illustrated lecture in story form, depicting the life history of the elk of the Yellowstone National Park, his slides showing many stages in the development of an elk from birth to old age.

At the close of the program Mr. Willett spoke of having learned through correspondence that Dr. E. W. Nelson expects to be in Los Angeles some time in February and suggested that the date of the February meeting be changed if necessary to suit Dr. Nelson's convenience, so that he might be the speaker at that meeting.

Adjourned.—JOHN MCB. ROBERTSON, *Secretary.*

NORTHERN DIVISION

DECEMBER.—The December meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, December 18, 1930, at 8:00 p. m., in Room 2003, Life Sciences Building, University of California, Berkeley, with about fifty members and guests present. In the absence of officers, Mr. W. I. Follett presided. November minutes of the Northern Division were read and approved and November minutes of the Southern Division were read. The name of Miss Bernice Kautz, 2804 Stuart Street, Berkeley, California, was proposed by Edna M. Fisher.

The resolution proposing Dr. Charles Wallace Richmond for Honorary Membership in the Cooper Club was given final reading. A motion was unanimously passed electing Dr. Richmond an Honorary Member. Similar action having been taken by the Southern Division, the Secretary was instructed to apprise Dr. Richmond of the Club's action. A motion was made, duly seconded and unanimously passed, that the President of the Northern Division appoint a committee of three to nominate officers for the Division for the new year; Dr. Storer appointed Mrs. Allen, Chairman, Dr. Evermann and Dr. Alden H. Miller.

The program of the evening was given by Mr. Joseph Grinnell who spoke upon "Type Localities of Birds Described from California."

Adjourned.—HILDA W. GRINNELL, *Secretary.*

JANUARY.—The regular monthly meeting of the Cooper Ornithological Club, Northern Division, was held on January 22, 1931, at 8:00 p. m., in Room 2003, Life Sciences Building, University of California, Berkeley, with about sixty members present. Mr. W. I. Follett presided. December minutes of the Northern Division were read and approved. December minutes of the Southern Division were read. Mr. Reed W. Ferris was proposed for membership in the Club by Thomas T. McCabe.

Two letters were read by the secretary: the first from Dr. Charles W. Richmond expressing his appreciation of the Club's action in making him an Honorary Member; the second from Mrs. F. T. Bicknell, thanking the Northern Division for its support in the campaign to select a State Bird.

Mrs. James T. Allen, Chairman of the Nominating Committee, reported its selections to be: President, George M. Wright; Vice-president, Jean M. Linsdale; Secretary, Hilda W. Grinnell. Mr. Joseph Dixon moved that the report of the committee be accepted and the Secretary be instructed to cast a ballot electing these persons for the in-coming year. It was so voted and done.

Mr. Joseph Grinnell reported on the progress being made on the new A. O. U. Check-list. Mr. B. C. Cain announced that both Mr. Marshall Jencks and himself had noted the Dusky Warbler and the Black-throated Gray Warbler wintering again this year in Mosswood Park, Oakland.

Mr. J. Kenneth Doutt of the Carnegie Museum, Pittsburgh, then reported at length upon a trip made to Labrador three years ago, through the generosity of Mr. John B. Semple. Mr. Doutt's excellent talk was illustrated by lantern slides, many of which had been colored by Mr. George M. Sutton who was a member of the same expedition.

Adjourned.—HILDA W. GRINNELL, *Secretary.*

For Sale, Exchange and Want Column.—Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address JOHN McB. ROBERTSON, Buena Park, California.

FOR SALE—The Condor: vols. 21-29, 31-33, complete; The Auk: vols. 37-48, complete; Journal of Mammalogy: vols. 7-12, complete; Bent's Life Histories, Limicolae (pt. 1); Dall's Spencer Fullerton Baird; Van Denburgh's Reptiles of Western North America (2 vols.).—M. E. DAVIDSON, *717 Lincoln Ave., Palo Alto, California.*

WANTED—Auk: vol. I, nos. 2, 3; Nuttall Bulletin: vol. I, nos. 2, 3, 4, vol. II, nos. 3, 4.—WILLIAM G. FARGO, *506 Union St., Jackson, Michigan.*

FOR SALE OR EXCHANGE—Books and pamphlets on birds, etc., and odd numbers and volumes of The Auk, The Condor, etc. Lists on application. Exchange lists solicited. Wanted: American Naturalist.—C. A. KOFOID, *4079 Life Sciences Building, Berkeley, California.*

FOR SALE—One thousand negatives and several hundred lantern slides, made by the late Walter Bruce, president of the Spokane Bird Club. Many of these are originals, some copied from books. Slides 25 to 50 cents each.—J. L. SLOANAKER, *1117 Maxwell, Spokane, Washington.*

FOR SALE—Bent's Life Histories: Gulls and Terns, $6.00; Petrels and Pelicans, $5.00; Marsh Birds, $5.00; Shore Birds, Part I, $4.00; Shore Birds, Part II, $4.00. —W. LEE CHAMBERS, *2068 Escarpa Drive, Eagle Rock, California.*

WANTED—An old skin or mounted specimen of the California Condor, taken before the present law prohibiting the shooting of this bird went into effect. In answering advise date collected, condition and sex.—MILTON S. RAY, *2901 Broadway, San Francisco, Calif.*

WANTED—The following volumes: Dana, J. D., 1852-53, Crustacea, Parts 1, 2, in United States Exploring Expedition, vols. 13, 14, pp. 1-1620; Folio Atlas with 96 Plates, 1885.— STEVE A. GLASSELL, *9533 Santa Monica Blvd., Beverly Hills, Calif.*

FOR SALE—Preliminary Catalog of the Birds of Missouri, by O. Widmann, price $3.00 per copy.—The SECRETARY of the Academy of Science, *Washington University, St. Louis, Mo.*

FOR SALE—The library of the late J. Eugene Law is to be sold. Please send 4 cents in stamps for an itemized list.—MRS. LAURA B. LAW, *Box 247, Altadena, Calif.*

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COOPER CLUB PUBLICATIONS

Until December 31, 1932, the following Cooper Club publications are for sale at greatly reduced prices. The old price is shown in parenthesis, followed by the present price.

THE CONDOR

Vols. XIV to XXIX (1912-1927) The Condor, complete, each volume ($2.00 and $3.00) - - $1.00

PACIFIC COAST AVIFAUNA

No. 1, 1900 Birds of the Kotzebue Sound Region, Alaska; 80 pp., 1 map ($1.50) - - - - $0.50
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No. 5, 1909 A Bibliography of California Ornithology; 166 pp. ($2.00) - - - - - - - $0.75
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No. 7, 1912 Birds of the Pacific Slope of Southern California; 122 pp. ($1.50) - - - - - $0.50
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No. 8, 1912 A Systematic List of the Birds of California; 23 pp. ($0.50) - - - - - $0.25
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No. 9, 1913 The Birds of the Fresno District; 114 pp. ($1.50) - - - - - - - - - - - $0.50
By J. G. TYLER

No. 10, 1914 Distributional List of the Birds of Arizona; 133 pp., 1 map ($1.50) - - - $0.50
By H. S. SWARTH

No. 11, 1915 A Distributional List of the Birds of California; 217 pp., 3 maps ($3.00) - - $1.00
By J. GRINNELL

No. 12, 1916 Birds of the Southern California Coast Islands; 127 pp., 1 map ($1.50) - $1.00
By A. B. HOWELL

No. 13, 1919 Second Ten-Year Index to THE CONDOR; 96 pp. ($3.00) - - - - - - - $1.00
By J. R. PEMBERTON

No. 14, 1921 The Birds of Montana; 194 pp., 35 illustrations ($6.00) - - - - - - - $2.00
By ARETAS A. SAUNDERS

No. 15, 1923 Birds Recorded from the Santa Rita Mountains in Southern Arizona; 60 pp., 4 illustrations ($1.50) - - - - - - - - $0.50
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No. 16, 1924 Bibliography of California Ornithology; 2nd Installment; 191 pp. ($6.00) $2.00

No. 17, 1925 A Distributional List of the Birds of British Columbia; 158 pp., colored frontispiece and map, 26 line maps, 12 ills. ($5.00) - $1.50
By ALLAN BROOKS and HARRY S. SWARTH

No. 18, 1927 Directory to the Bird-life of the San Francisco Bay Region; 160 pp., one map, colored frontispiece ($4.00) - - - - - - - $1.50
By JOSEPH GRINNELL and MARGARET W. WYTHE

No. 19, 1929 Birds of the Portland Area, Oregon; 54 pp., 21 illustrations ($2.00) - - - - $0.50
By STANLEY G. JEWETT and IRA N. GABRIELSON

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Bird Art Catalogues

Catalogue of an exhibition of paintings by American Bird Artists, First Annual Meeting, Los Angeles Museum, April, 1926; 24 pp. ($1.00) - - - - - - - - - - - - - - - - $0.50

Catalogue of the work of Major Allan Brooks held in connection with the third annual meeting of the Cooper Ornithological Club May 4-6, 1928, under the auspices of the San Diego Society of Natural History, Fine Arts Gallery, Balboa Park, San Diego, Calif., 10 pp. ($0.50) - - - - - - - - - - - - - - - - $0.25

Other Publications

Birds of the Pacific Slope of Los Angeles County. Pub. No. 2, Pasadena Acad. Sci., March, 1898; 52 pp. ($0.20) - - - - - - - - - - $0.10
By J. GRINNELL

The Story of the Farallones, 1897; 36 pp., 28 ills. ($0.20) - - - - - - - - - - - - - $0.10
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